UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

JUN 07 2002

Mr. James Houston
Environmental Compliance Manager
New Castle County Department of Special Services
187-A Old Churchmans Road
New Castle, DE 19720

Re: Pretreatment Program
NPDES No. DE0050547

Dear Mr. Houston:

Thank you for your letter of May 21, 2002 which responded to my comments on the County's local limits submission. Your response to the issues that I raised are acceptable. When you have completed the phosphorus study and have evaluated the local limit, please provide the calculations for review. For your use, I have included a revised "Pretreatment Monitoring Worksheet" which uses the final loadings listed in your letter to calculate the maximum allowable headworks concentrations. The changes from the previous version that I sent you are very minor in nature.

If you have any questions regarding this matter, please contact me at 215-814-5790.

Sincerely,

John Lovell
Pretreatment Coordinator

Enclosure

cc: Peder Hansen, DE DNREC

THOMAS P. GORDON
COUNTY EXECUTIVE

JOSEPH J. FREEBERY
GENERAL MANAGER

DEPARTMENT OF SPECIAL SERVICES

April 30, 2002

John Lovell
US EPA Region III
1650 Arch Street
Philadelphia, PA 19103

RE: Pretreatment Program 1998 Local Limit Submission.
NPDES No DE0050547

Dear Mr. Lovell:

Thank you for your letter regarding New Castle County's pretreatment program and the local limit evaluation. In the letter you have approved the most recent submittal, but as part of that approval process you specified that the County must first adopt the Local Limits as part of the Industrial Pretreatment Regulations and the County Code. We have drafted the regulations for submittal to County Council for adoption, but must first wait for the City of Wilmington to adopt their Local Limits as the City's local limits are an integral part of our regulations. We have enclosed a draft of the County's proposed regulation for your preliminary review. When you have completed your review, and the City of Wilmington's approved limits are incorporated, the proposed regulations can be adopted by the County.

Should you have any questions or require further information on this matter, please contact David Bowie at (302) 395-5728.

Sincerely,

James D. Houston
Environmental Compliance Manager

cc: Tracey Surles/Jon Husband, NCC
David Bowie, NCC, encl. File
Sid Sharma, City OF Wilmington, encl.

file:c:\pretreatment\wac\mot/regletter02

187A OLD CHURCHMANS ROAD, NEW CASTLE, DE 19720 PHONE: 302-395-5700 FAX: 302-395-5787

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Mr. James Houston
Environmental Compliance Manager
New Castle County Department of Special Services
187-A Old Churchmans Road
New Castle, De. 19720

JUN 9 2001

Re: Pretreatment Program
NPDES No. DE0050547

Dear Mr. Houston:

This is in response to your letter of January 8, 2001 which responded to my comments on the County's 1998 local limits submission. Your letter indicates that the County has decided to use the actual calculated removal rates for chromium, copper, and lead rather than the more stringent removal rates used in the 1998 submission. However, your letter provides removal rates of 70% for chromium, 74 % for copper, and 65% for lead. Based on sampling data from 1997 and 1998, the 1998 submission calculated removal rates of 74.7% for chromium, 71.0% for copper, and 82.1% for lead. Please provide an explanation of the source of the removal rates in your January letter. If they are based on data other than the data contained in the 1998 submission, please provide a summary of the sample results or the actual lab results.

Because the change in removal rates does not impact the County's proposal to maintain the existing chromium limit, that proposal is acceptable. For lead my calculations, using the removal rate and background loading from the 1998 submittal, result in a limit of 6.7 mg/l. Since the County's proposal of 4.0 mg/l is more stringent than this, it is acceptable. However, for copper my calculations, again using the data from the 1998 submittal, result in a limit of 2.6 mg/l, and therefore the County's proposed limit of 3.0 mg/l is not acceptable.

Your letter also indicates that based on a comparison of the data from the 1997 and 1998 submittals, the calculated limits from the 1997 submission can be used. There were two main differences between the 1997 and 1998 submittals. First, for the 1998 submittal, the County conducted background sampling during May of 1998. This data was used to revise the "domestic" loadings used in the 1998 submittal. Since there was no supporting data provided in the 1997 submittal for the background data, it appears that the 1998 values are more appropriate.

In regard to the removal rates, my main comment on the removal rates used in the 1997 submittal was that there was no rationale provided for the choice of each removal rate. The 1998

submittal provided the rationale those choices, and the rationale was accepted with the exception of the comments provided in my letter of July 3, 2000 on chromium, copper, lead, and zinc. Again, because the rationale was provided for the 1998 submittal, it appears that those removal rates may be more appropriate that the removal rates from the 1997 submittal.

Based on these differences, the County's proposed limits for arsenic, cadmium, mercury, and nickel are not acceptable because they appear to be less stringent than necessary based on the 1998 submission. The proposed limit for silver is acceptable, although it appears to be more stringent than necessary based on the 1998 submission. The proposal to maintain the existing phenols limit is acceptable, although the 1998 submittal suggested that a limit was not necessary. Your proposal to maintain the existing zinc limit until further study of the removal rates is conducted is acceptable, as is the proposal to eliminate limits for aluminum, beryllium, molybdenum, selenium, thallium, and cyanide. The proposed limit for PCBs is acceptable as well.

For BOD and TSS, your letter appears to indicate that the County could relax the current limits but the County is proposing to maintain those limits. For TSS, is appears that the industries are well below the current limit, and therefore this does not appear to present a problem. For BOD the data in your letter indicates that MacDermid Imaging often violates the existing limit. Since your data indicates that the existing limit is more stringent than necessary, the proposal to maintain it is acceptable. However, it appears that MacDermid will need to install pretreatment equipment in order to maintain compliance with the limit. The proposal to maintain the ammonia limit is acceptable.

Since the County violated its NPDES permit limits for phosphorus and kjeldahl nitrogen during calendar year 2000, it appears that local limits for these pollutants may be warranted, and the proposed limits in Table 7 of your letter are acceptable.

Please provide a response to the issues raised above. If you have any questions regarding this matter, please contact me at 215-814-5790.

Sincerely,

John Lovell
Pretreatment Coordinator

cc: Peder Hansen, DE DNREC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

JUL 3 2000

Mr. James Houston
Environmental Compliance Manager
New Castle County Department of Special Services
187-A Old Churchmans Road
New Castle, De. 19720

Re: Pretreatment Program
NPDES No. DE0050547

Dear Mr. Houston:

Thank you for your response to my comments on the County's local limits evaluation. With the possible exception of zinc and the need for additional information for ammonia, BOD, and TSS (see comments below), the County's proposed limits are acceptable. However, please note the other responses to some of your comments below.

Pollutants of Concern

Since the County will not be required to consider land application of its sludge in development of the local limits, evaluation of the allowable headworks loading for selenium and molybdenum will not be required. In regard to cyanide, an evaluation of the allowable headworks loading also will not be required. However, the County should periodically monitor the levels of cyanide at the users to ensure that it is not generated in the manufacturing operations. My recommendation would be for once per year monitoring by the County, but at a minimum, monitoring should be performed at least once during the reissuance cycle of each user's permit. This data could also be used to support the continued absence of a cyanide limit.

Sludge Disposal

Since the County has no intention of land applying its sludge, use of the land application standards for sludge disposal is not required. It is my understanding, however, that at least part of the Wilmington sludge is land applied. Therefore, unless the City reserves a special allocation for acceptance of the County's sludge, it may not be able to accept the County's sludge if it exceeds the land application standards. In addition, I believe that the fact that New Castle will not be disposing of sludge for 10 - 20 years actually argues in favor of maintaining flexibility in sludge disposal options. Since it becomes more difficult to predict the variables (e.g., cost, availability, etc.) that go into choosing a sludge disposal option as the

anticipated disposal is further into the future, it would seem to be prudent planning to keep disposal options as open as possible. While the proposed revisions to the local limits are acceptable without the use of the sludge disposal criteria, it is noted that this is contrary to EPA's recommendation.

Removal Rates

Your April 20, 2000 letter indicates that the County has chosen to use a lower removal rate for chromium, copper, and lead as an added safety factor. Since the County's revised local limits are based on water quality considerations, the lower removal rate results in a lower local limit. Since this is likely to prevent pass through, it is acceptable. However, it should be noted that the County will be required to enforce the local limits even if the effluent from the County's treatment plant does not exceed the water quality standards upon which the local limits are based. It should also be noted that the local limits, upon approval, become federal standards which are enforceable by EPA and other interested parties under the Clean Water Act.

Your letter indicates that the removal rate for zinc used in the 1998 local limits evaluation may have been incorrect, and that additional sampling will be conducted over the next six months. However, your letter did not indicate whether the County was proposing to move forward with approval of the zinc limit as proposed, or if the County wants to wait for the additional sampling data to become available and revise the limit prior to approval by EPA. Please clarify. Since the revision of the removal rate would most likely result in a less stringent local limit, the proposed limit for zinc is acceptable. Again, however, the County will be required to enforce the local limit.

PCBs

A no discharge limitation for PCBs is acceptable.

Ammonia, BOD, TSS

Your April letter states that current local limits are based on the design loading of the treatment plant, and that the "percentage of the industrial contribution was factored as a proportion in the local limit." To complete the record for the limits development, I would like to see the data that went into this determination for each of the pollutants (e.g., design loading, industrial contributions, etc.), and sample calculations for at least one of the pollutants.

Since some of the County's proposed local limits are less stringent than the existing limits, the revision of the limits is considered a substantial program modification under 40 CFR 403.18(b). Therefore, prior to approval of the County's proposed limits, EPA must public notice the proposed limits. After the 30 day public notice period, assuming no adverse comments are received, EPA could then proceed with the approval of the new limits. However, before the limits can be put out to public

notice, they must be adopted by the County and any other jurisdictions served by the County's treatment plant. Based on our records, this would include the Town of Middletown.

Please provide a response to the zinc, ammonia, BOD, and TSS issues raised above, as well as an indication of when you believe that the revised limits might be adopted. If you have any questions regarding this matter, please contact me at 215-814-5790.

Sincerely,

John Lovell
Pretreatment Coordinator

cc: Paul Janiga, DE DNREC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

FEB 3 2000

Mr. J. B. Asthana, Ph.D., P.E.
Chief of Environmental Engineering
New Castle County Department of Special Services
187-A Old Churchmans Road
New Castle, De. 19720

Re: Pretreatment Program
NPDES No. DE0050547

Dear Mr. Asthana:

I have completed review of the County's revised local limits submission dated November 25, 1998 and the addendum dated December 29, 1998. I apologize for the delay in providing this response.

Pollutants of Concern - There are several pollutants for which the County has existing limits, but for which no headworks evaluation was done. Some of the limits for these pollutants are proposed to be dropped, while some of the limits are proposed to remain at the current levels. The proposal for dropping limits for aluminum, beryllium, thallium, hexavalent chromium, and phenolics is acceptable. The proposal to maintain the existing limits for ammonia, BOD, and TSS, and the proposal to replace the existing PCB limit with a no discharge standard are acceptable, although a headworks analysis for these parameters should be completed as discussed below.

Before accepting the proposal for eliminating the limits for selenium and cyanide, I will need additional information. Depending on the resolution of my comments on sludge disposal (see below), a headworks evaluation for selenium (and molybdenum) may be necessary. For cyanide, the County states that cyanide is not detected in the influent or effluent, and there are no industrial users that discharge cyanide. while the detection level used on the influent and effluent monitoring was relatively high, I can accept dropping of the limit if the users are not discharging any cyanide. While the submission states that the users are not discharging cyanide, no data is provided to support that statement. Upon submission of such data, I can accept the dropping of the cyanide limit.

Inhibition - In my letter of February 3, 1998 which provided comments on the County's 1997 local limits submission, I noted that local limits must be designed to prevent pass through and

interference, and the prevention of interference meant an evaluation of the limits based on inhibition of the treatment plant processes. The cover letter of your November 25, 1998 submission indicates that process inhibition was not considered because of the long detention time (63 days) and large volume (143 million gallons) in the treatment system. While this suggests that the treatment system would not be susceptible to inhibition from short term increased levels of pollutants, it does not seem to address the potential impact to the system from long term increased levels. A local limit that does not address inhibition potentially allows inhibitory levels of a pollutant to be discharged consistently for months or years. Over a long period of time, this type of discharge could increase levels of the pollutant in the treatment system, potentially causing inhibition. It appears that the County needs to include inhibition in the evaluation.

Sludge Disposal - In its submission, the County states that it did not consider sludge disposal because industrial dischargers make up a small percentage (< 5%) of the total plant flow, and because the lagoons were designed with a ten year storage capacity for sludge.

It is not unusual for industrial dischargers to make up less than 5% of the total plant flow for a POTW that is implementing a pretreatment program. While a lower industrial flow means that the potential for impact from industrial users may be lessened, possibly resulting in higher local limits, it does not eliminate the need to evaluate the limit based on sludge disposal (or any other appropriate criteria). Even small industrial flows have caused contamination of POTW sludge at times.

In terms of the long sludge storage capacity of the treatment plant, again, I do not believe that this is justification for not evaluating local limits based on interference with sludge disposal as required by the pretreatment regulations. At some point, the County will be required to dispose of sludge that has been generated now. Although the disposal may be several years in the future, discharges which contaminate the sludge today, could cause interference with the sludge disposal several years from now. The County must ensure that its local limits prevent interference with its chosen sludge disposal option. What plans does the County have to dispose of its sludge when the time comes? Is land application under consideration? If the County is planning on land applying its sludge when the time comes, then the local limits must consider the land application standards for sludge. This would include an evaluation of the need for limits for selenium and molybdenum. If the County has not decided on a sludge disposal mechanism, then it would be prudent to ensure that, to the extent possible, all disposal options (including land application) would be available in the future. Even if the County has planned to dispose of its sludge in a landfill, we recommend that the land application standards be used in the evaluation to ensure that

sludge disposal options are as open as possible.

Removal Rates - The County's submission indicates that removal rates are based on actual sampling data unless "the calculated removal efficiencies appeared to be higher than the acceptable reference range." In these cases, a conservative removal rate was picked based on literature data. This is an acceptable approach, although I have some questions on the removals selected for a few of the pollutants.

For chromium, the County calculated a removal rate of 74.7%. This is consistent with the removals in the two reference documents provided by the County (both 71%). However, the County used a chromium removal rate of 35.5%. It would appear that the calculated removal rate is appropriate in this case. Please provide an explanation for the use of the lower removal rate.

For copper, the County calculated a removal rate of 71.0%. This removal rate is fairly consistent with the removals in the two references provided (82% and 74%). However, the County used a removal rate of 41% for copper. Again, it appears that the calculated removal rate is appropriate, and the County should provide a specific explanation for the selection of the 41% removal rate.

For lead, the County calculated a removal rate of 82.1%. This removal rate is significantly higher than the removals in the two references (57% and 58%), but the County used a removal rate that appears to be half of the lowest of these removals (28.5%). While the calculated removal rate is significantly higher than the reference removal rates, it does not appear to justify the use of a removal rate that is significantly below the reference removals, and therefore I will need specific justification for this removal as well.

For zinc, the County used the calculated removal rate of -161.5%, but expressed concern over the validity of this figure and stated that it would investigate causes of the increased zinc values in the effluent. Has the County discovered any causes for the elevated effluent zinc levels? Under normal circumstances, such a strongly negative removal rate would not be expected unless significant quantities of the pollutant in question are being added in the treatment process, possibly as a treatment chemical. If the County has determined and corrected the cause of the elevated levels of zinc in the effluent, it should reevaluate the local limit for zinc based on new data. Unless the County has reason to believe that the increase in zinc levels across the treatment plant is valid, it may want to consider maintaining the current local limit for zinc while it conducts additional monitoring to confirm the removal rate.

PCBs - The County has proposed replacing the existing PCB limit with a "no discharge" standard. Presumably, any detectable amount of PCBs would be a violation. If the County has made a

decision to not accept any amounts of PCBs, this is an acceptable approach. However, the submission also states that the County might accept PCBs on a case by case basis. In order to facilitate this determination, it is recommended that the County conduct a headworks analysis to determine the loading which it can accept while preventing pass through and interference. If the County decides to accept PCBs in the future, this sort of analysis would be required anyway.

Ammonia, BOD, TSS - The County did not complete a headworks analysis for these three pollutants, and has proposed maintaining its current local limits. While I can accept this at this time, the County should evaluate whether the current limits are sufficient to prevent pass through and interference. This could be as simple as using the design loadings for the treatment plant as the maximum allowable headworks loading and allocating this loading between regulated and unregulated sources.

Ammonia - While the County has a current local limit for ammonia, its NPDES permit includes a limit for TKN. The County may want to consider developing a local limit for TKN in addition to, or in place of, the local limit for ammonia. Do any of the industrial users discharge TKN?

Phosphorus - The County has apparently had recent violations of the limit in its NPDES permit for phosphorus. Have the causes of these violations been determined? Do the industrial users discharge phosphorus? The County may need to develop a local limit for phosphorus.

Please provide a response to the issues raised above. If you have any questions regarding this matter, please contact me at 215-814-5790.

Sincerely,

John Lovell
Pretreatment Coordinator

Enclosure

cc: Paul Janiga, DE DNREC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

Mr. J. B. Asthana, Ph.D., P.E.
Chief of Environmental Engineering
New Castle County Department of Public Works
100 New Churchmans Road
New Castle, De. 19720-3192

FEB 3 1998

Re: Pretreatment Program
NPDES No. DE0050547

Dear Mr. Asthana:

I have completed review of the County's local limits submitted October 1, 1997. Before completing the review, I will need additional information. In addition, I have some comments on the submission as indicated below.

Generally, in order to evaluate a local limits submission, some background data is required such as a description of the treatment plant and a discussion of the sources of data used in the calculations. Attached is a listing of the suggested information to include in a local limits submission. The following discussion is presented in the same order as the attached.

Treatment Plant Description - In order to evaluate whether the local limits evaluation correctly considered things such as process inhibition, I will need a description of all unit processes in place at the treatment plant. If the description of the treatment units does not fully describe their function (e.g., nitrification in an activated sludge unit), this should be included as well.

Copy of NPDES Permit - I do not have a copy of the County's current NPDES permit.

Pollutant Selection - It appears that the local limits evaluation included all of the existing local limits, as well as iron and molybdenum. Why was this list selected? Why were these two additional pollutants evaluated? Were any other pollutants evaluated to determine whether additional local limits are necessary?

Data Collection - Comments on the data specifically used for water quality calculations (e.g., stream hardness) are provided below.

- Domestic data - The submission should provide all of the individual data points used in the determination of "New Castle County Residential" data.

  The submission states that the domestic data was obtained through sampling conducted in solely residential locations. Generally, the "domestic" data should be obtained from sections of the service area which represent "unregulated" sources. This may include commercial facilities as well. Sampling for future local limits reevaluations should be done in this manner.

  The submission assumes "0 mg/l" as the background level for four pollutants - aluminum, beryllium, hexavalent chromium, and thallium. The proposed limits for all of these pollutants except thallium are more relaxed than the currently approved limits. The assumption of 0 mg/l for the domestic for these pollutants underestimates the unregulated portion of the system, and therefore local limits calculated using this assumption may not be protective of the treatment plant and its discharges. The County should maintain its existing limits for aluminum, beryllium and hexavalent chromium, or conduct sampling to correctly characterize the background loadings. It should be noted that the previous submission used values of 1.02 mg/l for aluminum, 0.0002 mg/l for beryllium, and 0.001 mg/l for hexavalent chromium.

- Flow rates - The submission uses a total plant flow of 0.5 mgd, an industrial flow of 0.016 mgd, and a background flow of 0.484 mgd. It is unclear where these flow rates came from, and an explanation should be provided in the submission. A review of the DMR data in our computer system suggests that the average flow for the treatment plant in the last year is slightly lower than 0.5 mgd. In addition, the industrial flow used in the "Industrial Loadings" table suggests that the total industrial flow should be 0.0107 mgd (0.0071 + 0.0036). This would suggest a higher background flow rate should be used.

- Removal Rates - The submission must include an explanation of the determination of the removal rates. For several pollutants, no influent or effluent sampling was conducted. Additional sampling should be conducted for these pollutants (aluminum, beryllium, hexavalent chromium, cyanide, PCBs, silver, and thallium). For other pollutants, all or most of the influent and/or effluent data indicated non-detectable levels of the pollutants (arsenic, cadmium, mercury, nickel, lead, and selenium). If more sensitive test methods are available, additional sampling should be conducted for these parameters as well. While some of these values appear to be taken from the previous submission (aluminum, beryllium, and thallium) or the 1983 program development guidance (cyanide

and mercury), no explanation is provided for others. Where pollutants are taken from the previous submission, this should be noted and the rationale from the previous submission provided. Please note that the 1987 local limits guidance is considered a better source of "default" removal rates than the 1983 guidance.

The calculated removal rate for zinc was "-106%". The County should reevaluate the data supporting this removal and determine whether this is a valid removal rate. It is possible that influent and effluent results were switched, or that the effluent sample are being contaminated.

Sludge Disposal - The submission states that sludge disposal "is not applicable to the MOT facility." This statement is unclear. Is no sludge generated or disposed? Generally, if sludge is generated and disposed, the Region recommends that the POTW use the land application criteria from Table 3 of EPA's sludge regulations, even where sludge disposal is to landfill. This furthers the stated goal of the pretreatment regulations to improve the opportunity to reclaim and recycle municipal sludges (land application). It also provides for a broad range of sludge disposal options for the POTW.

Water Quality - The submission does not provide an explanation of the source of the hardness and stream flow data. It has been my experience that the hardness used in water quality calculations is generally the same for both the chronic and the acute criteria. In addition, it has also been my experience that the dilution ratios for calculation of limits based on the chronic and the acute criteria are generally not so divergent as the values used by the County. Please provide an explanation.

In addition, the submission uses an allowable effluent concentration for molybdenum of 0.010 mg/l. It is unclear where this value came from since it is not included in the "Standards & Criteria" table. Please explain.

Inhibition - The pretreatment regulations require that local limits prevent pass through and inhibition. This would include inhibition with treatment plant processes. No inhibition evaluation was conducted by the County. Please explain.

Methodology - The calculation methodology used by the County is generally correct. However, we do recommend that POTWs use a safety factor to account for future industrial and residential growth, and to account for potential violations, including slug loads. Generally a safety factor of between 10 and 25% is recommended. The safety factor would be subtracted from the total allowable headworks loading.

In addition, the "PRELIM Limit" and the "Calculated Limit" for silver are significantly different. It appears that this is due to rounding used in the "Calculated Limit." Therefore it

appears that the "PRELIM Limit" would be more appropriate.

Finally, the submission proposes to relax the BOD limit with no explanation except to say that "the lagoon capacity allows for increased reduction of BOD." While this may be appropriate, more documentation is needed. Rather than the complete local limits evaluation, generally it is acceptable to start with the design loading of the treatment plant as the maximum allowable headworks loading. This would be reduced by the background loadings and a safety factor to calculate the maximum allowable industrial loading and the allowable local limit.

Please revise the submission based on the above comments. If you have any questions regarding this matter, please contact me at 215-566-5790.

Sincerely,

John Lovell
Pretreatment Coordinator

Enclosure

cc: Paul Janiga, DE DNREC